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ABSTRACT

When different individuals operating in different contexts implement similar innovations, they approach the various parts of the innovation in different ways. When assessed according to the research procedures used to study innovation implementation at the Research and Development Center for Teacher Education at the University of Texas at Austin, the patterns formed by the combination of these modified parts into new, tailored versions of the innovation are called innovation configurations. This report describes the five-step process for developing the checklists with which innovation configurations can be assessed and evaluated, then delineates some of the conceptual and technical problems associated with using the process. The five data collecting steps include identifying the components of the innovation, verifying the use of these components and establishing the range of variations in that use, refining the checklist developed in the first two steps, collecting data, and analyzing the data. Discussed here are the following problems associated with the procedure: establishing the reliability of the checklists, developing suitable data aggregation methods, and assessing the degree of change represented by the use of a particular version of an innovation. Examples of data types and data presentation methods are included. (PGD)

RESEARCH ON CONCERNS-BASED ADOPTION

A PROCEDURE FOR ASSESSING THE IMPLEMENTATION OF INNOVATIONS WITH POSSIBILITIES AND PROBLEMS

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A PROCEDURE FOR ASSESSING THE IMPLEMENTATION OF INNOVATIONS WITH POSSIBILITIES AND PROBLEMS[1,2]

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The purpose of the 1981 AERA symposium, "Assessing Program Adaptation During Implementation: Concepts, Strategies, and Issues," is to present one approach to the measurement of implementation of educational innovations that has been developed at the University of Texas Research and Development Center. The approach has evolved out of the Project for Adopting Educational Innovations' research on change efforts in schools. Initially the Project's research focused on the behaviors and attitudes of teachers implementing an innovation. It has more recently turned to the innovation itself in an attempt to expand its understanding of the change process. The concept of Innovation Configurations grew from the Project's efforts to conceptualize, define and measure innovations as they are used by individuals in an organizational setting. The history and background to the development of Innovation Configurations is contained in Hall and Loucks (1981) paper presented at this same symposium, and in other works of the Project (Hall & Loucks, 1978; Heck, et al., 1981).

[1]The research described herein was conducted under contract with the National Institute of Education. The opinions expressed are those of the authors and do not necessarily reflect the position or policy of the National Institute of Education. No endorsement by the National Institute of Education should be inferred.

[2]Paper presented at the annual meeting of the American Educational Research Association, April 1981, Los Angeles.

Innovation Configurations, as we have conceptualized them, represent the operational patterns of the innovation that result from implementation by different individuals in different contexts. In the course of early research we conducted with different innovations, we noted that individuals used parts of an innovation in different ways. When these parts were put together, a number of different patterns emerged, each characterizing a different use of the innovation. We called these patterns Innovation Configurations. The means of representing the parts of the innovation and variations in the use of these parts, such that patterns may be derived, is called an Innovation Configuration Checklist.

My role in the symposium is to present the procedure that has been developed to measure Innovation Configurations, to delineate some of the problems, both conceptual and technical with its use, and to suggest some directions for future dialog in the area of implementation measurement. I discuss first the procedure and then the problems.

I. Procedure for Developing Checklists and Assessing Innovation Configurations

The procedure for collecting information from which Innovation Configurations are then built, is relatively straightforward. The analysis of the information collected, may, or may not, be simple, depending on the purpose of the data collection and the nature of the innovation. The starting point of the procedure is always the consideration and clarification of how the information collected will be used. Information can be used to answer the question," What exactly do adopters of an innovation do when they use the innovation?" This sort of question asks for descriptive information about the behaviors of individuals as they implement an innovation. Such information is potentially useful in a dissemination context when a new program is being explained to nonusers.

It may also be useful in a staff development context when information is needed on what users do (or do not do) before inservice workshops can be planned.

Another question requiring descriptive information asks, "To what extent are innovation adopters using an innovation in a particular way?" The questions suggest some norm or standard against which user performance is to be measured. This questions may be applied to a staff development context in which what a user is doing is compared to what the developer of the innovation or a change agent working with innovation users intends for the user to do. The question suggests a perspective on information-gathering of persons outside the context of the innovation user. It is the perspective most commonly adopted when talking about innovations.

Whether or not the first or second question is asked depends on the prescriptiveness of the innovation, as well as situation-specific variables such as time-elapsed since implementation, needs of the funding agency, politics of the school, etc. By prescriptiveness, we mean the degree to which users are expected to use the innovation in pre-specificed ways with little or no adaptation. Users of innovations that are prescriptive are suppoed to implement the innovation faithfully. Implementation is matched to some "ideal" as established by someone outside the context of the implementation. The intent, not always explicit, of collecting information about implementation of innovations that are prescriptive, is to move adopters toward more faithful replication of the innovation.

Innovations that leave discretion to the individual user or adoption site, or even explicitly encourage change, are not prescriptive. It is more difficult to evaluate whether or not users are implementing a non-prescriptive innovation according to some preconceived plan. The information needs around a non-prescriptive innovation tend to be purely descriptive, at least initally.

A third order of questions asks, "What are the effects of having implemented the innovation?" Effects are usually intended as student outcomes. In this case, information about implementation is not an end in itself, but a means to further analysis using outcome data. Thus, it is important that the information collected about implementation possess the necessary properties to be used in multivariate analysis (Taylor & Bianchi, 1981). In short, the type of question asked has bearing on the instrument developed and the analysis performed. I turn now to the procedure for collecting information about implementation.

The procedure for collecting information consists of five steps. The flow chart on the next page summarizes the general procedure for identifying Innovation Configurations. (For an extended discussion of the procedure, see Heck, et al., "Measuring Innovation Configurations: Procedures and Applications," 1981).

STEP 1: Identifying Innovation Components

The first step requires the identification of components, or parts of the innovation. Components are the major operational features of an innovation. For instructional innovations, these are usually either materials, teacher behaviors or student activities.

Component identification is begun by reading descriptive materials about the program. Next the developer or program facilitator, or curriculum coordinator is interviewed. Sometimes developers are the teachers in the program; sometimes they are in the district office. Often they are outside the adoption institution, and are in other schools, development agencies, or publishing companies. The outcome of the first step is a clear picture of what constitutes the innovation as key persons want it to be used by teachers or others and a tentative list of components and a few variations for each component.

PROCEDURE FOR IDENTIFYING INNOVATION COMPONENTS, VARIATIONS AND CONFIGURATIONS

ACTIVITIES	OUTCOMES
1. Review written materials describing innovation	1. General familiarity with innovation
2. Interview developer for innovation components and variations within each component	2. Preliminary checklist of innovation components developer's perspective with examples of variations; interview questions and probes for exemplary site
3. Interview and observe a small number of users at exemplary site to verify developer's component checklist	3. Revised checklist with questions to ask of developer
4. Return to developer to reconcile points of view presented by developer and users; establish universe of variations; delineate "acceptable" and "Unacceptable" variations from developer's viewpoint (if desired).	4. Final component checklist with variations and decision points; interview questions and probes for interviewers to use in field
5. Interview large number of "users" in different adopter sites	5. Data for use in developing innovation configurations

STEP 2: Verification of Components and Variations

Subsequent to interviewing the developer, users are observed and interviewed to get a concrete image of what users are doing when they implement and interweave the components. Users are probed for the components they believe to be essential to the innovation. Different types of users, new, old, at different grade levels, etc., are interviewed so as to elicit as wide a variation in implementation as possible. The initial checklist is expanded at this point.

STEP 3: Refinement of Checklist

The third step in delineating the "it" that adopters are working with is to refine the checklist through new discussions with the developer. These serve to clarify which are the most important components, to verify variations, to resolve discrepancies between developer and user viewpoints and to standardize language and format. At this point, questions and probes to ask of users are added. A checklist is now ready for completion by users or for use by persons interviewing and/or observing users. A sample checklist is exhibited on the following page.

STEP 4: Data Collection

The data base for use in analysis of components and delineation of Configurations may be generated from interviews, observations, and/or self-administered checklists. Completion of the checklist by the user has the primary advantage of making few demands of users' time and availability. It is best utilized with innovations that are simple and require few complex interactions between components. More complex innovations need the breadth and depth of information that an interview provides.

Tutoring Program Checklist

	(1)	(2)	(3)
1. Materials and Equipment	At least 5 different program materials are used with each child each session.	At least 3 different program materials are used with each child each session.	Less than 3 different program materials are used with each child each session.
2. Diagnosis	Children are diagnosed individually using a combination of tests and teacher judgment.	Children are diagnosed individually using teacher judgment only.	Children are not diagnosed individually.
3. Record-Keeping	Individual Record Sheet is used to record diagnosis and prescription.	No Individual Record Sheets are used.	
4. Use of Teaching Technique	Continually readjusts task according to child needs; uses rewards to reinforce student success.	Does not continually readjust task according to child needs; does not use rewards.	
5. Grouping	Children are taught in pairs.	Children are not taught in pairs.	
6. Scheduling	Children are taught for 30 minutes 3 times per week. Each session is equally divided between children.	Children taught for 30 min. 3 times per week, time for each child and each task varies slightly when necessary.	Children not taught for 30 min. per week 3 times per week, or time for each child and each task varies markedly or is not considered.

CODE: ——— Variations to the right are unacceptable; variations to the left are acceptable.

– – — Variations to the left are ideal, as prescribed by the developer.

Interviewing allows the individual to define the innovation as she/he sees it, in terms of her/his relationship with the innovation, without the restriction of component categories imposed from the outside. In an interview, the checklist becomes both a guide for the interview and a tool for recording the information elicited from the user.

Observation has particular value when an innovation involves multiple user roles, or has components that call for interactive processes. In combination with interviewing or self-completion, it allows for a broader perspective of the innovation and a sense of the context which can be helpful in interpreting user responses. Observation also provides a means of validating the information collected by interview or pen and paper methods.

STEP 5: Data Analysis

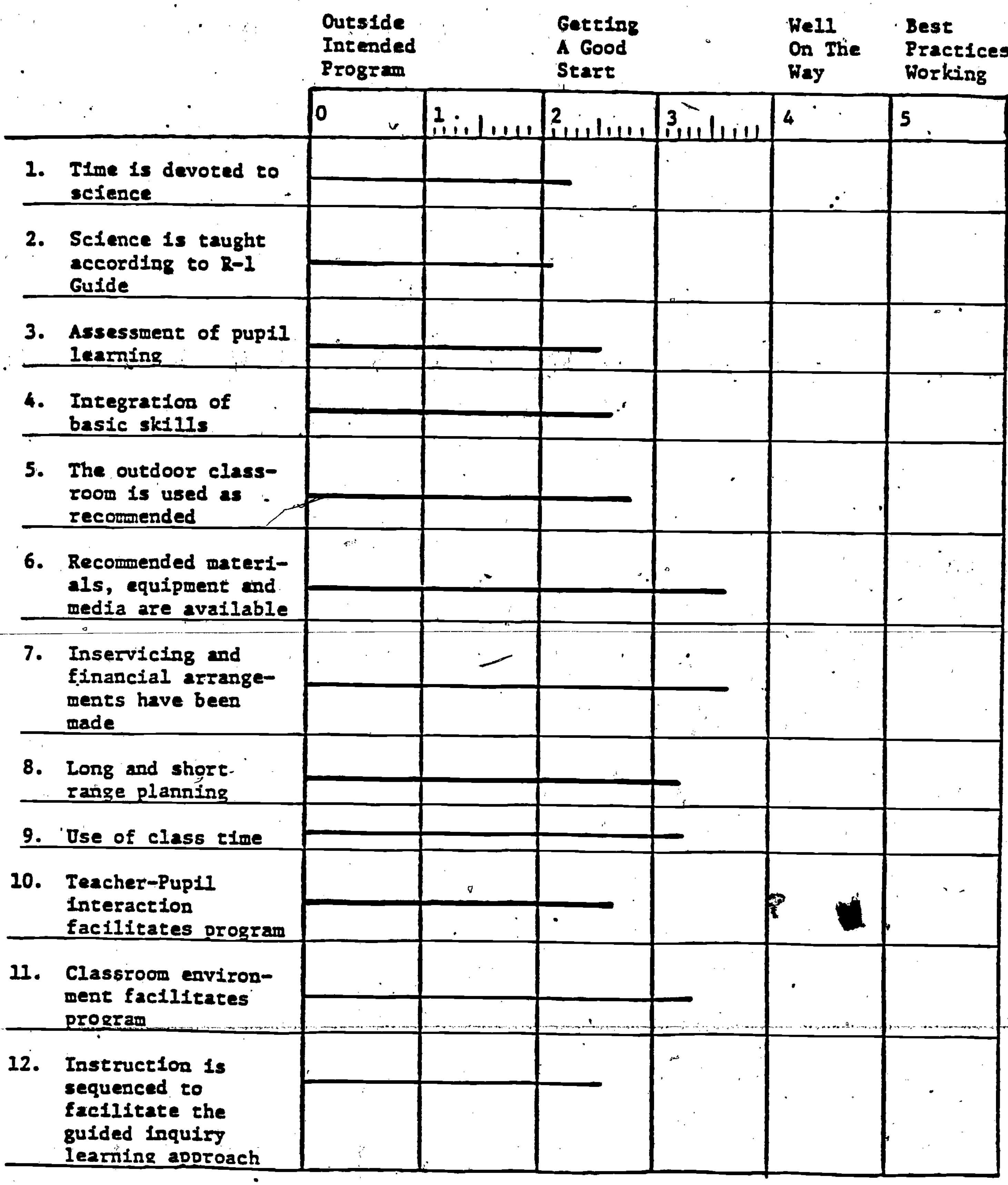
There are many ways to analyze the information collected on a component checklist, though the most common type of analysis is the simple computation of component frequencies. Profiles of how components are used by teachers within a team, grade level, school or district are made from the raw tallies. The examples on the following pages show data summarized within a single school for 11 teachers and across 11 schools for 92 teachers. The innovation being implemented was an elementary science curriculum. Each of the components of the innovation was operationalized; rating points for each variation were established by principals and district coordinators after extensive observation and interviews with teachers. Data was collected by interview and observation. Teacher data was aggregated within schools, and data from individual schools was aggregated across the district. The final data was used both for reporting to the Board and for planning inservice.

Sample Building Summary Sheet

	OUTSIDE INTENDED PROGRAM 1	GETTING A GOOD START 2	3	WELL ON THE WAY 4	BEST PRACTICES WORKING 5
1. Time is devoted to science	*** **	*	**	*	**
2. Science is taught according to R-1 Guide	*** ***	*** **			
3. Assessment of pupil learning	*** ***	*** **			
4. Integration of basic skills	*	***** ****	*		
5. The outdoor classroom is used as recommended		*** **	*** *	**	
6. Recommended materials, equipment and media are available			*** **	*** *	**
7. Inservicing and financial arrangements have been made		*	*** **	*** **	
8. Long and short range planning		***	*** ***	**	
9. Use of class time	**	**	****	**	*
10. Teacher-Pupil interaction facilitates program	***	****	****		
11. Classroom environment facilitates program		***	***	***	**
12. Instruction is sequenced to facilitate the guided inquiry learning approach	**	**** *	****		

School Winter Elementary Teacher all 3, 4, 5, 6 teachers

The Average Extent of Implementation on Each Component for All Classrooms



N = 113

A further analysis step involves the development of Innovation Configurations either by hand analysis of the checklist data or by the use of computer pattern analysis techniques. Whether or not the development of Innovation Configurations is an appropriate next step, again, depends on one's information needs. As a heuristic, Configurations can be useful in describing how groups of users approach implementation. It can simplify and consolidate a great deal of detailed information, for example, for reporting purposes to a school board or outside funding agency. While a useful summary measure, it cannot be used as a diagnostic for individual teachers because the groupings mask individual differences. Data at the individual level must be used for specifics on each teacher.

Innovation Configurations can also be used to relate implementation patterns to outcomes. This has been done with the Configurations developed from a Skills Achievement Monitoring system (George & Hord, 1980) that was developed for the purpose of assessing the mathematics skills of students. Three classes of innovation users were developed clinically by the interviewers who had collected the information on the checklist. The component, "Use of Objectives" was the starting point for discrimination and initial placement of users. The three basic groupings, called "high," "medium," and "low" implementation, were entered in the computer and a non-hierarchical cluster analysis run. A vector of averages on each item was formed for each of the three groups. Percentage of users employing a particular practice was computed for each component within each of the three groupings. The results of the clustering procedure are displayed on pages 11 and 12.

An analysis of covariance was performed using the final achievement test of the school year as the dependent variable. The three implementation groups served as the independent variable; the initial achievement test, grade level

Results of Hierarchical Cluster Analysis on SAM Configuration Checklist

% True Hi	% True Med	% True Low		
				Objectives
70	12	5	1	Uses the SAM objectives as the primary curriculum guide for ongoing instruction.
98	95	80	2	Devotes class time to teaching some or all SAM objectives for ongoing math instruction -- not remediation.
4	3	20	3	Increases attention to teaching SAM objectives immediately previous to SAM testing (i.e., "preps" for SAM tests).
78	95	95	4	Teaches math objectives other than SAM objectives (whether or not SAM objectives are taught).
33	32	20	5	Instructs resource room students in SAM objectives.
				Instructional Materials
65	20	10	1	Uses pre-packaged materials (IMP or similar) keyed to SAM objectives for ongoing math instruction.
78	17	15	2	Uses personally grouped materials keyed to SAM objectives for ongoing math instruction.
				Testing
93	20	15	1	Administers tests specifically focused on SAM objectives between SAM tests.
98	97	90	2	Administers other math tests besides SAM tests.
5	5	0	3	Administers more than one level of the SAM to individual students (i.e., a student takes two SAM tests simultaneously).
90	69	40	4	Moves students from one level of the SAM to another during the year.
				Printouts
100	92	95	1	Sees that students each receive a copy of each SAM printout.
100	83	30	2	Provides that each student has a readily accessible record of performance (printout or chart) on previous SAM tests.

% True				
Hi	Med	Low		
85	83	80	3	Expects students to take <u>each</u> (every) printout to parents.
90	95	90	4	Sends printouts home with students at end of year (regardless of other times).
3	3	0	5	Requests parents to sign to show they have received printouts.
10	26	5	6	Shares SAM printouts with child's other teachers (e.g., Title I).
8	6	0	7	Posts SAM printouts in classroom (e.g., on the wall).
				Remediation
98	98	25	1	Requires students to show mastery or work toward mastery of objectives missed on SAM tests.
28	49	15	2	Creates problems or exercises "on the spot" to reteach missed objectives.
83	37	10	3	Uses pre-packaged materials keys to SAM objectives (IMP or similar) for remediation work.
83	37	5	4	Uses personally grouped materials keyed to SAM objectives for remediation.
20	63	35	5	Reviews SAM results with class as a whole within a few days of their return.
93	37	15	6	Reviews SAM results with individual students within a few days of their return.
10	37	40	7	Focuses remediation on whole class (based on SAM results).
60	63	20	8	Forms small groups based on SAM results for the purpose of remediation.
98	66	5	9	Focuses remediation on individual students (based on SAM results).
100	100	60	10	Compares previous results on SAM test with current results.
95	100	30	11	Assists students to be aware of progress made since last test (or over the year).

and sex as the covariates. It was shown that the "medium" implementation group correlated highest with achievement scores. The results of this analysis were used in application for validation of the innovation at the state and federal level. They were further used by developers of the innovation and decision makers to see which practices had gained widespread use and which seemed to be most related to outcomes. This information was communicated to new schools who were considering adoption of the innovation.

A second example where outcomes were related to Innovation Configurations was in an experimental Bilingual program (Butler, 1980). The purpose of the program was to implement three instructional models, one each in two of the six participating schools. The instructional models were defined a priori and information from a checklist was used to classify users as belonging to one of the five models. An analysis of covariance was performed that, while producing relatively few results that could be educationally significant, did reveal gains of the Project groups that fairly consistently outweighed those of the comparison group. The data supported the recommendation that the District consider utilization of the cheaper of the models, since neither seemed related to more significant gains.

While both these examples used Configurations as a measure of implementation that could be related to outcomes, they were quite different in their approaches. One, the Student Achievement Monitoring system, derived both components and Configurations from the interviews with teachers; the other, the Bilingual program, used theoretical models to establish the Configurations, and fit the data to these models. Both examples were useful, yet also generated problems, which are discussed in the next section.

II. Some Problems Inherent in the Procedure: Caveats and Possibilities

A. Checklist Reliabilities

One of the questions we have asked ourselves concerning the implementation assessment procedure presented above, is how reliable it is to assess implementation at a particular point in time. In several instances we have tried to ascertain the answer to this question, some in more formal ways than others.

In the first instance, the innovation was the Skills Achievement Monitoring system mentioned previously (George & Hord, 1980). The monitoring system as finally evolved, consisted of criterion-referenced tests, a computer program for scoring the tests, and printout results. The innovation was non-prescriptive in that it left up to teachers what they would do with the tests and test results. The checklist that was used with teachers served as a guide for the interview, but the final components could be derived only after receiving information from teachers as to what the innovation was. Interview tapes were analyzed and a 29-item checklist derived from the teachers' statements about their use of the innovation. As the interview had been extensive and contained the same categories of behavior as the 29-item checklist, it was decided to try to make inferences on those items not specifically addressed in the interview. Most teachers gave very specific descriptions of their practices in the classroom, thus making the completion of the final checklist from inferences a possibility. Six interviews were rated independently by another person to assess the reliability of the ratings. On these tapes, there was an 87% agreement on the True/False rating for items on which one or both raters indicated an inference was necessary. Ninety-four percent agreement was found on items for which both raters agreed no inference was necessary.

On the one hand, these statistics suggest that good reliabilities can be maintained even under "high inference" conditions. On the other, it should be noted that the items on the checklist were all dichotomous. The user was rated

as either "doing" or "not doing" an item. Consequently, the rater did not have to choose between different variations, therein making ratings easier and reliabilities more likely. We do not know what the reliabilities might be with more variations for each component.

A second setting in which we looked at checklist reliabilities was a nationwide study of dissemination strategies of four federally funded programs (Crandall, D.P., et al., 1981). A subset of the larger sample was used for an ethnographic study. Field workers spent up to a week three times a year at a site both interviewing and observing people involved in the implementation of the innovation under study. Some of the teachers at the ethnographic sites had also participated in the larger study in which an interviewer using the component checklist had asked teachers about their use of the innovation. Ethnographic site workers filled out the same checklist for the teachers that had been interviewed earlier by other field workers.

The few matching checklists that we do have contain discrepancies in the ratings of the ethnographic and interview field workers. This may be due to the fact that the field worker gathered information to complete the checklist at a different time from when the interviewer was present. It is more likely, in our opinion, that the two data collectors imputed different meaning to the component and their variations, particularly where the component described teaching processes and student interactions. Ethnographic field workers, by definition, knew far more about the site, the innovation at the site, and the teachers using the innovation than the interviewers. They were more likely to interpret the component from the user's point of view -- to search if a teacher were using the spirit, if not the letter of a component. The possibility of unreliable information, in the sense of differing information, presented by two different sources goes back to the question of whose perspective does one capture on the

checklist? Does one want to incorporate the meaning of components for individual users in their daily routines, and if so, how?

The last instance in which reliabilities were attempted was a different case. The innovation in point was the bilingual program mentioned earlier (Butler, 1980). The purpose of the program was to implement 3 instructional models, on each in two of the six participating schools. The checklist contained five components. The variations within each component were defined as belonging to one of the three instructional models. Decision rules concerning which combination of variations fell into which Configurations, or instructional model, were established. Interviewers recorded their overall judgement of a teacher's position on the continuum of models which was later expanded to contain two mixed models, as well as to classify each teacher on the basis of each component rated. Each teacher interviewed was also observed and rated on the same checklist by district resource staff the same week as the implementation interview. Reliabilities on the overall rating on the instructional model implemented by the teacher was over 90%. Reliabilities were not computed on individual component ratings.

This case is different from the others in that reliabilities were established on overall configurations rather than on individual components. This approach was possible because the instructional models or Configurations had intentionally been built into the program from the beginning.

Where the question of interest is whether or not a general model or configuration is being implemented, then it is likely that the checklist is a reliable instrument. When information is needed about specific components or behaviors, it is more likely that there will be disagreement between raters, due in part to lack of specificity of the desired behavior and the resulting difference in meaning that different interviewers and observers impute to the component varia-

tion. There may be no simple answer to this problem, for the more one moves toward precision in defining behaviors, the more likely one is to loose the interaction of that behavior of the rest of the behaviors, setting, and context in which it is embedded.

B. Data Aggregation

Another area in which we have raised questions is in the aggregation of data across individuals. At times we want to know about overall implementation at a site, and can summarize component data across users for staff development or formative evaluation purposes. One simply indicates the number or percentage of users implementing a component in a given way and displays the information in matrix form.

The problem is somewhat more complex when trying to relate the innovation to student outcomes and/or summarizing data across sites, and even innovations. In the case of the bilingual education project described above, the procedure for relating Innovation Configurations to student outcomes via an analysis of covariance was relatively straightforward. With only six components on the checklist, clearcut decision rules for assignment of behaviors to Configurations, it was possible to relate program implementation information to student outcomes on standardized achievement tests. When Configurations are derived subsequent to data collection, however, through some sort of cluster analysis, as was the case of the Student Achievement Monitoring system described above, the concern with the stability of groups and the possibility of reproducing the same result with different groupings arises. More work on the formation of Configurations through cluster techniques is currently underway at the Center.

In the national study of innovation dissemination mentioned above (Crandall, D.P., et al., 1981), another form of aggregation problem arose

(Taylor & Bianchi, 1981). One objective of the study was to compare extent of implementation measures across schools, innovations and federal dissemination strategies in terms of length of adoption, type of innovation, extent of the adoption locally, level of local school efforts, characteristics of teacher participation, administrative support, demographic factors of schools and characteristics of states. Checklists were designed for 63 different innovations. Each checklist measured fidelity to some ideal implementation. Variations for each component were expressed on a continuum with each variation moving farther away from the ideal. A score for individuals was arrived at by summing the scores of that individual on each component. Site scores represented an average extent of implementation for all individuals at that site. Besides questions concerning the appropriateness of the site score per se, it was found that the loss of information incurred when aggregating individual scores to the site level and using site scores in a multivariate analysis washed out those effects that were later found in data left at the individual level. The problems of missing data, the trade off between lost cases and dropped variables, multiple sources of sampling error are not new to the checklist. We point them out, however, simply to illustrate the need for caution in using the instrument in a research/evaluation context without careful consideration of the problems that are likely to arise.

C. The Relationship of Past and Present Practice: The Area of "Change"

A third area which has been problematic in the analysis and interpretation of information on the checklist is the area of "change." An obvious point, but one that can sometimes be lost, is that the information derived from interviewing and observing teachers characterizes what they are doing at present with the innovation. The information does not indicate what the user was doing prior to

the adoption of the innovation. It cannot convey whether or not present practice is different from past practice, although certainly in the course of an interview with a teacher, a teacher will share information about what she/he was doing before implementing the innovation. In a change effort where fidelity to some new program is desired, it is important to consider where teachers started as well as where they are currently in the implementation effort. Expectations for what can realistically be achieved by a teacher (or is desirable), and the nature of technical assistance, depend largely on users' starting points. The checklist can be used to structure questions about what teachers were doing previously, but it is important to remember that the components relate to the present program.

A second point concerning change relates to what the student receives in a new program. Does change exist for the student? Take the case of a counselor turned to student tutor in a remedial reading program for disadvantaged children. For the teacher in the new program, the role change is probably significant. For the student, who has been receiving some form of remedial reading over the past 3 years, the change may not be significant. Do we expect that the teacher will need some support in the role change? Probably yes. Do we expect that the student will perform better under the new reading program? Not necessarily if the program is not "better" in some way <u>for the student</u>. Once again, we recommend caution in using information from the checklist in talking about "change." The information does not necessarily imply change; and change, if it does exist, does not necessarily bring improvement. The area of change and what it means to both users and students relates to our fourth area of concern, the relevance of the innovation, defined as a set of behaviors, for outcomes.

A final area in which we have given some thought to the uses and limits of the procedures described above concerns the relationship of the information on

the checklist to the total learner environment in the classroom and school. The components of an innovation represent the behavioral aspects of the innovation, purposely designed to be distinct from the philosophy, implementation requirements and perceived attributes of the innovation. Surely, however, these other categories and approaches for describing innovative programs, procedures, and practices are also important for the implementation process. The philosophical orientation, the values and beliefs associated with the innovation, and their congruence with those of the adopters are important for the resistance to and acceptance of the innovation. Indeed, persons such as Fullan (1980) and Leithwood (1980) consider the philosophy of the innovation integral to the innovation. Implementation includes acceptance and utilization of that philosophy. Implementation requirements, the training, materials and facilities needed to support the implementation effort are considered by some to be part of the innovation. In their absence, the implementation effort cannot occur. Finally, how users perceive an innovation, its utility, advantage, and compatibility with their own roles and agenda is important. From a dissemination point of view, the perceived attributes of an innovation are important for teachers' willingness to implement the innovation, or for the decision to decide not to. A component checklist purposely does not include these aspects or definition of an innovation. It focuses on behavior of users. Although we believe user behaviors are essential to the successful implementation of innovations, we recognize the importance of other viewpoints and definition in trying to understand and implement innovations.

Further, it is important to remind ourselves, that teaching and learning include a variety of instructional dimensions that may or may not overlap with the innovation and which may be more important to student outcomes than the innovation itself (Leinhardt, 1980). For innovations that encompass a total

classroom or school such as an alternative high school or a kindergarten/first grade program to prevent school failure or a bilingual program, the point may not be of much importance because the program incorporates the instructional dimensions to which children are exposed. But many innovations are not of such all-encompassing magnitude. They touch upon one of several subject areas to which a student is exposed or one of the many management strategies used by a teacher, or one type of student-teacher interaction. Far more transpires in the course of the whole day for both student and teacher than the innovation itself. In such cases it may be inappropriate to expect outcomes associated with the innovation. We need to look at the whole learning context of the classroom and look for those factors in addition to the innovation that influence how and what students learn. Innovation Configurations is both a metaphor and a tool that is useful in defining and measuring innovations, but it must be used in concert with other concepts and measures to get at the complex nature of change.

References

Butler, J. Northside ISD Title VII bilingual/bicultural demonstration project: Final report of a planned variation study of three alternative approaches to bilingual/bicultural education of young children, 1975-1980, Office of Education Grant No. G00-75-07163, October, 1980.

Crandall, D. P., et al. A dissemination study in support of school improvements, The NETWORK, Andover, Mass., 1981.

Fullan, M. & Pomfret, A. Research on curriculum and instruction implementation. Review of Educational Research, Spring 1977, 47(2), 335-397.

George, A. A. & Hord, S. M. Monitoring curriculum implementation: Mapping teacher behaviors on a configuration continuum. Paper presented at the annual meeting of the American Educational Research Association, Boston, April, 1980.

Hall, G. E. & Loucks, S. F. Innovation configurations: Analyzing the adaptations of innovations. Paper presented at the annual meeting of the American Educational Research Association, Toronto, March, 1978.

Hall, G. E. & Loucks, S. F. The conceptualization of innovation configurations: An approach to addressing program adaptation. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, April, 1981.

Heck, S., Stiegelbauer, S. M., Hall, G. E. & Loucks, S. F. Measuring innovation configurations: Procedures and applications. Austin: Research and Development Center for Teacher Education, The University of Texas, 1981.

Leithwood, K. A. & Montgomery, D. J. Evaluating program implementation. Evaluation Review, April 1980, 4(2), 193-214.

Leinhardt, G. Modeling and measuring educational treatment in evaluation. Review of Educational Research, Fall 1980, 50(3), 393-420.

Taylor, J. A. & Leonard B. Research problems in multi-site, multi-method research designs: The case of a study of dissemination efforts supporting school improvement. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, April, 1981.